



## **Comparative analysis of raindrop size distribution between southern Korea and Norman, Oklahoma**

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The particle size distributions (PSD) are key component to describe microphysical processes and furthermore to predict precipitation amount in numerical weather prediction. PSDs vary from storm to storm and depends on different climatic regimes. The variation of PSD causes significant uncertainty in retrieval techniques in remote sensing, precipitation estimation, and forecasting. In this study, the characteristics of PSD are examined in two regions (East Asia: Daegu city, DG and North America: Oklahoma city, OK) using radar measurement and microphysical parameters such as intercept parameter ( $N_w$ ), mass-weighted mean diameter ( $D_m$ ), rainfall intensity ( $R$ ), and average PSDs derived from distrometric measurement.

2-dimensional Video Distrometer (2DVD) data are obtained from rain cases during 2011-2012 year in DG and during 1998-2006 year in OK. The microphysical parameters ( $N_w$ ,  $D_m$ ,  $R$ ) are calculated by moment ( $M_n$ ) method. The probability density functions of these parameters and average PSDs are compared as functions of different reflectivity ( $Z$ ). PSD from DG has relatively large  $N_w$  and small  $D_m$ , whereas that of OK is characterized by small  $N_w$  and large  $D_m$ . The differences are noticeable when  $Z > 35$  dBZ. This indicates that dominant microphysical process of heavy rain differs from DG and OK. We will explore possible microphysical processes that are responsible for the difference.